

CLAIMS

What is claimed is:

1. A leak detection system for a flowing electrolyte battery comprising:

- 5 - at least one containment member associated with at least one of a stack of a flowing electrolyte battery and an electrolyte reservoir of a flowing electrolyte battery; and
- means for sensing a fluid leak within the containment member.

2. The system of claim 1 wherein the sensing means comprises:

- 10 - at least one switch comprising a first plate and a second plate, wherein fluid within the containment member serves to electrically couple the first plate to the second plate, to, in turn, close the switch;

 - a controller associated with the switch, the controller capable of sensing the condition of the switch; and

- 15 - a connector electrically associating the switch and the controller.

3. The system of claim 2 wherein the sensing means further comprises:

- a resistor positioned in parallel to the switch.

20 4. The system of claim 2 wherein the at least one switch comprises a plurality of switches positioned in parallel.

5. The system of claim 1 wherein the at least one containment member comprises:

- at least one stack leak containment member associated with at least one stack; and
- at least one electrolyte reservoir leak containment member associated with at least one reservoir.

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6. The system of claim 5 wherein the sensing means is capable of sensing a leak in each of the stack leak containment member and the at least one electrolyte reservoir leak containment member.

7. A leak detection system for a flowing electrolyte battery comprising:

- at least one containment member associated with at least one of a stack of a flowing electrolyte battery;

- at least one containment member associated with an electrolyte reservoir of a flowing electrolyte battery; and

- means for sensing a fluid leak within one of the containment members, wherein the sensing means comprises:

- at least one sensor having at least one switch positioned within one of the containment members such that a leak collecting in the respective containment member triggers the switch;

- at least one controller associated with the sensor; and

- a connector associated with each of the sensor and controller.

8. The leak detection system of claim 7 wherein the sensor includes a plurality of switches;

9. The leak detection system of claim 8 wherein the plurality of switches are positioned substantially in parallel.

10. The leak detection system of claim 7 wherein the sensor includes at least one resistor
5 positioned in parallel with the at least one switch.

11. The leak detection system of claim 7 wherein the controller includes a means for signaling the condition of the sensor to a user.

10 12. A method for detecting leaks in a flowing electrolyte battery comprising the steps of:
- providing at least one containment member for at least one of the stack and the reservoir;
- providing at least one sensor;
- positioning at least one sensor such that a leak collected in the at least one containment
member triggers the sensor;
15 - providing a controller; and
- associating the controller with the at least one sensor, such that the controller is capable of
electrically communicating with the sensor.

20 13. The method of claim 12 wherein the step of providing at least one containment member comprises the steps of:

- providing a stack containment member;
- positioning the stack containment member such that a leak from the stack is collected by

the stack containment member;

- providing a reservoir containment member; and

- positioning the reservoir containment member such that a leak from the reservoir containment member is collected by the reservoir containment member.

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14. The method of claim 13 wherein the step of providing a sensor comprises the steps of:

- providing a sensor for the stack containment member; and

- providing a sensor for the reservoir containment member.

10 15. The method of claim 14 wherein the step of positioning the at least one sensor comprises the steps of:

- positioning a sensor in the stack containment member such that a leak collected in the stack containment member triggers the sensor; and

- positioning a sensor in the reservoir containment member such that a leak collected in the reservoir containment member triggers the sensor.

16. The method of claim 12 further comprising the step of sensing a fluid leak.

17. The method of claim 16 further comprising the step of determining the type of fluid leak.

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